

CHAPTER 61. EVALUATION AND SURVEILLANCE OF HELIPORTS

SECTION 1. BACKGROUND

1. PROGRAM TRACKING AND REPORTING SUBSYSTEM (PTRS) ACTIVITY CODE: 1695

3. OBJECTIVE. The objective of this task is to perform a safety evaluation of a proposed or existing heliport in order to provide the evaluation results to the regional Airports Division. Successful completion of this task results in the provision of the completed safety evaluation of a heliport site to the Airports Division.

5. GENERAL.

A. Request for On-Site Evaluation. Upon receipt of an application, the Airports Division initiates the process of performing a safety evaluation of a proposed or existing heliport. The Airports Division normally forwards the request to the Flight Standards Division which will, as a part of its evaluation, request that the Flight Standards District Office (FSDO) conduct an on-site evaluation. The request the FSDO receives from the region should contain the following items:

- FAA Form 7480-1, Notice of Landing Area Proposal
- Heliport location map with a description of the location and geographic coordinates
- Heliport layout sketch of the proposed facility

B. Evaluation Reference Materials. The FSDO manager assigns an inspector to the evaluation task. The manager normally delegates this task to a helicopter specialist or to the most qualified person in the office with respect to helicopter flight operations. To evaluate proposed and existing heliports and to resolve an applicant's questions, the delegated inspector needs to be familiar with the contents of the current edition of Advisory Circular (AC) 150/5390-2, Heliport Design, FAA Order 7400.2C, Procedures of Handling Airspace Matters, and Title 14 of the Code of Federal Regulations (14 CFR) parts 77 and 157.

C. Data Required. It is the responsibility of the FSDO to determine if helicopter flight operations can be conducted safely within specified current guidelines

and regulations. The FSDO evaluates the suitability of the proposed or existing heliport and advises the Flight Standards Division of the findings. An evaluation of a heliport consists of an inspector recording the factual data outlined in figure 61-2, Heliport Evaluations Checklist. (See FAA Order 7400.2C, paragraph 3220.)

7. HELIPORTS.

A. Types of Heliports. Heliports are one of two types, public or private. The inspector must determine if the heliport will be limited to private use or will be available for public use.

(1) Public use heliports can be publicly or privately owned. As public use facilities, they can be used by any qualified pilot without requirements for prior approval from the owner or operator.

(2) Private use heliports are available only for use by the owner and other persons authorized by the owner. The inspector should be primarily concerned with airspace study, as opposed to a facility evaluation, for a private use heliport.

B. Hospital Heliports. Hospital heliports should be treated as special cases because they are used by professional helicopter pilots providing a unique public service. Hospital heliports may be either private or public use. They are normally located in close proximity to a hospital emergency room or medical facility. Special considerations for standards relevant to a hospital heliport are found in the current edition of AC 150/5390-2.

C. Definitions.

(1) *Final Approach and Takeoff Area (FATO).* A FATO is a defined area over which the final phase of the approach to a hover or a landing is completed and from which the takeoff is initiated.

(2) *Touchdown and Liftoff Area (TLOF).* A TLOF is an area (helideck or helipad) normally centered in the FATO where the helicopter lands or takes off.

(3) *Protection Zone.* A protection zone is an area off the end of the FATO and under the approach/takeoff path established to provide for the protection of people and property on the ground.

(4) *Safety Area.* A safety area is a defined area on a heliport surrounding the FATO that is free of objects, other than those required for air navigation purposes, and intended to reduce the risk of damage to helicopters accidentally diverging from the FATO.

D. Elements.

(1) Heliports may be located on the ground, water, or rooftop level.

(2) The FATO may include one or more TLOF's within its borders at which arriving helicopters terminate their approach in a hover or a landing. Objects or structures should be outside the FATO to permit at least one clear approach/takeoff path aligned with the prevailing winds. The FATO must be at least 1.5 times the length of the design helicopter.

(3) A FATO safety area, which is equal to at least 1/3 the rotor diameter of the design helicopter, should be established surrounding the FATO. Dimensions of the design helicopter are used to determine the size of the FATO and can be found in the helicopter data chart (figure 61-1). The actual width of the FATO safety area is determined by the ultimate use of the heliport and the suggested dimensions can be found in AC 150/5390-2.

(4) The FATO and the FATO safety area must be free and clear of objects such as parked helicopters, buildings, fences, or objects, which could be struck by

the main or tail rotor or catch the skids of an arriving or departing helicopter.

E. Ingress/Egress Routes.

(1) Where practical, a public use heliport should have more than one approach/takeoff path free of objects and aligned as nearly as possible with the prevailing winds. A private use heliport will have at least one. Additional approach/takeoff paths are recommended when site conditions permit.

(2) It is recommended that an imaginary approach/takeoff surface be centered on the approach/takeoff path and conform to the dimensions of part 77, Heliport Approach Surface.

(3) Approach/takeoff paths may curve to avoid objects and/or noise sensitive areas. In many situations, portions of the approach/takeoff path can use the airspace existing above public lands and waters, freeways, streets, parks, rivers, and lakes. Approach/takeoff paths should avoid congested areas, heavily populated urban areas, or environmentally sensitive areas.

(4) Public use heliports should have an approach and takeoff path protection zone to a distance where the imaginary approach/takeoff surface is 35 feet above the heliport elevation. For example, an 8:1 approach or departure angle horizontal distance would equal 280 feet to meet the 35 foot requirement. The function is to enhance the protection of persons and property on the ground, to permit the clearing of incompatible objects, or to exclude congregations of persons or activities from the approach/takeoff surface.

[PAGES 61-3 THRU 61-6 RESERVED]

SECTION 2. PROCEDURES

1. PREREQUISITES AND COORDINATION REQUIREMENTS

A. Prerequisites. This task requires knowledge of the regulatory requirements of parts 77 and 157 and Federal Aviation Administration (FAA) policy and qualification as an aviation safety inspector (ASI) (operations). Additionally, the inspector should be helicopter rated.

B. Coordination. This task requires coordination with the regional Airports Division and may require coordination with the airworthiness unit.

3. REFERENCES, FORMS, AND JOB AIDS.

A. References.

- 14 CFR parts 1, 77, and 157
- PTRS Procedures Manual (PPM)
- AC 20-35, Tie-Down Sense
- AC 70-2, Airspace Utilization Considerations in the Proposed Construction, Alteration, Activation and Deactivation of Airports
- AC 70/7460-1, Obstruction Marking and Lighting
- AC 70/7460-2, Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace
- AC 150/5020-1, Noise Control and Compatibility Planning for Airports
- AC 150/5190-4, A Model Zoning Ordinance to Limit Height of Objects Around Airports
- AC 150/5200-30, Airport Winter Safety and Operations
- AC 150/5230-4, Aircraft Fuel Storage, Handling and Dispensing on Airports
- AC 150/5345-27, Specification for Wind Cone Assemblies
- AC 150/5345-28, Precision Approach Path Indicator (PAPI) Systems
- AC 150/5345-52, Generic Visual Glideslope Indicators (GVGI)
- AC 150/5390-2, Heliport Design
- AC 150/5390-3, Vertiport Design
- FAA Order 1050.1, Policies and Procedures for Considering Environmental Impacts

- FAA Order 5050.4, Airport Environmental Handbook
- FAA Order 7400.2C, Procedures of Handling Airspace Matters
- Helicopter Noise Model
- Structural Design Guidelines for Heliports (Report Number AD-A148967)
- National Fire Protection Association (NFPA) Pamphlet 10, Standard for Portable Fire Extinguishers
- NFPA Pamphlet 418, Rooftop Heliport Construction and Protection
- NFPA Pamphlet 403, Fire Fighting Services at Airports

B. Forms.

- FAA Form 7480-1, Notice of Landing Area Proposal

C. Job Aids.

- Sample figures

5. PROCEDURES.

A. Open PTRS. Upon receipt of an application (FAA Form 7480-1) forwarded by the regional Flight Standards division, open a PTRS file.

B. Contact Applicant. Contact the applicant and discuss the necessity for the following:

(1) The appropriate building permit and zoning application approval from the local municipality, as applicable. The applicant should contact the local zoning authorities and inform them of the proposed heliport.

(2) The appropriate approval from the state authorities. The applicant should contact the state aviation authorities to inform them of the proposed heliport.

(3) The completion of an environmental assessment if the applicant intends to apply for Federal assistance. FAA Order 1050.1 provides guidance for noise limits, land usage, water and air quality, socio-economic issues and viable alternatives to the proposed development. The applicant should contact

the appropriate environmental authorities and inform them of the proposed heliport.

C. Application Review. The inspector may confirm the details on the application with an on-site evaluation. Review the completed application for accuracy and completeness. The application must contain sufficient information for the inspector to accomplish the following:

(1) Block A. Determine that the geographic coordinates shown on FAA Form 7480-1 are the same as the actual location.

(2) Block B. Determine proposed use and the type design helicopter to be used. Public or private use determines the standards for dimensional requirements.

(3) Block C. Consider other visual flight rules (VFR) landing areas located within 5 nautical miles (nm) of the proposed site and instrument flight rules (IFR) airports/heliports within 20 nm.

(4) Block D. Using figure 61-1, determine design helicopter size and applicability for designed surface, FATO area, TLOF areas, approach/takeoff path, and safety protection zones, as required.

(a) Determine suitability of site location with regard to ingress/egress routes.

(b) Verify that the dimensions of the FATO listed in Block D of FAA Form 7480-1 are equal to or larger than the dimensions shown in the design criteria of AC 150/5390-2.

(c) Verify that the dimensions of the TLOF listed in Block D of FAA Form 7480-1 are equal to or larger than the dimensions shown in the design criteria of AC 150/5390-2.

i. The suggested TLOF dimensions should be equivalent to the rotor diameter of the design helicopter. The minimum TLOF dimension for a public use heliport is 2.0 x landing gear footprint and a private use heliport should be greater than 1.5 x landing gear footprint.

ii. Elevated touchdown pads less than 1.5 x rotor diameter may subject the helicopter to operational penalties due to loss of rotor downwash ground effect.

iii. Public use heliports should have an approach and takeoff path protection zone to a distance where the imaginary approach/takeoff surface is 35 feet above the heliport elevation. For example, an 8:1 approach or departure angle horizontal distance would equal 280 feet to meet the 35 foot requirement.

(d) Confirm type of surface of the touchdown area listed in Block D of FAA Form 7480-1.

(e) Verify that the information provided will enable the inspector to advise the applicant of the suitability of the proposed landing surface and ensure that the applicant is aware of the following penalties or advantages associated with various TLOF surfaces:

i. Loose surface (gravel, dirt, etc.) may cause visibility problems or foreign object damage to the engines or blades.

ii. Soft asphalt may cause dynamic roll-over.

iii. Soft surfaces may contain ruts or surface irregularities.

(f) *Miscellaneous Items.* A general inspection of the heliport should be completed to include the following items:

- Wire marking
- Wind direction indicators
- Rescue and fire fighting equipment and access
- Security, including fences, personnel safety devices, nets, and evacuation routes
- Parking, access gates, signs
- Surface markings (Do the heliport's construction, markings, and safety features meet requirements of AC 150/5390-2 criteria)
- Communications systems, equipment and procedures
- Fueling systems and equipment

(g) Determine adequacy of lighting, if any, for the intended operation and direction of prevailing wind. Prevailing winds may be determined through contact with the National Weather Service or other appropriate source.

(5) Block E. Determine if a visual surveillance of the proposed area is necessary to confirm obstructions which may effect operations. Obstructions within 1 nm of the proposed site should be noted.

(6) Block F. Determine if the applicant's projected information is suitable. The weight bearing capacity of the landing area should be no less than 1.5 x maximum gross landing weight of the design helicopter. The applicant is responsible for the structural integrity of the landing area. The applicant should consult with a contractor or architect to ensure that elevated or rooftop landing sites are capable of

supporting a landing helicopter with adequate safety margin.

(7) Block G.

(a) List schools, churches, residential communities within 1 nm. Hospitals and wildlife areas are also noted due to the noise sensitivity issue. Although potential noise sensitive areas are not safety related, the inspector should list the areas and make them known to applicants so that the helicopter operators are aware of the areas and try to avoid them whenever possible.

(b) FAA Order 1050.1, AC 150/5020-1 and the Helicopter Noise Model, available from AAE-100, Office of Environment and Energy, can provide the applicant with additional information.

(8) Block H. It is the applicant's responsibility to obtain the required state and local permits, authorizations and licensing. Zoning ordinances and local permits are not a Federal issue and are handled by the local or state government.

(9) Block I. Check for completeness.

D. Submit Report.

(1) Submit a written report to the Airports Division through the Flight Standards Division with one of the following noted:

- No objection to the proposal (it will not adversely affect the safe and efficient use of airspace by aircraft).
- No objection to the proposal if certain conditions are met (it will not adversely affect the safe and efficient use of

airspace by aircraft provided [give conditions]).

- Objectionable (it will adversely affect the safe and efficient use of airspace by aircraft [give reasons]).

(2) Submit any comments or recommendations to provide continuity, to recommend good operating practices, or to enhance safety, in the report to the Airports Division.

(3) Include a statement on the report to show that a "recommendation" is not a condition of objection, but is an option left to the discretion of the applicant.

(4) ASI's should cite any safety-related conditions and limitations separately for the Airports Division to include in the Notice of Determination.

E. Close PTRS.

7. TASK OUTCOMES. Completion of this task results in:

A. A completed safety evaluation.

B. Submittal of the evaluation report to the Flight Standards Division.

C. Retention of a copy of the completed safety evaluation in the office files.

9. FUTURE ACTIVITIES.

A. Possible future surveillance.

B. Evaluation of site for additional uses.

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**FIGURE 61-1
HELICOPTER DATA CHART**

This chart contains selected helicopter data needed by a heliport designer. The data represent the most critical weight, dimensional, or other data entry for that helicopter model, recognizing that specific versions of

the model may weigh less, be smaller in some feature, carry fewer passengers, etc. If more specific data is needed, the specific helicopter manufacturer should be contacted.

- | | |
|--|---|
| A Manufacturer and helicopter model. | I Tail rotor ground clearance in feet. |
| B Maximum takeoff weight in pounds. | J Gear pattern. |
| C Overall length in feet.
(Rotors at their maximum extension.) | K Undercarriage length in feet.
(Strut to strut.) |
| D Overall height in feet.
(Usually at tail rotor.) | L Undercarriage width in feet.
(The distance between tire or skid centers.) |
| E Rotor diameter in feet/no. of blades | M Number and type of engines. |
| F Rotor plane clearance in feet. | N Number of crew and passengers. |
| G Distance rotor hub to tail in feet. | O Standard fuel capacity in gallons. |
| H Tail rotor diameter (in feet). No Blades. | |

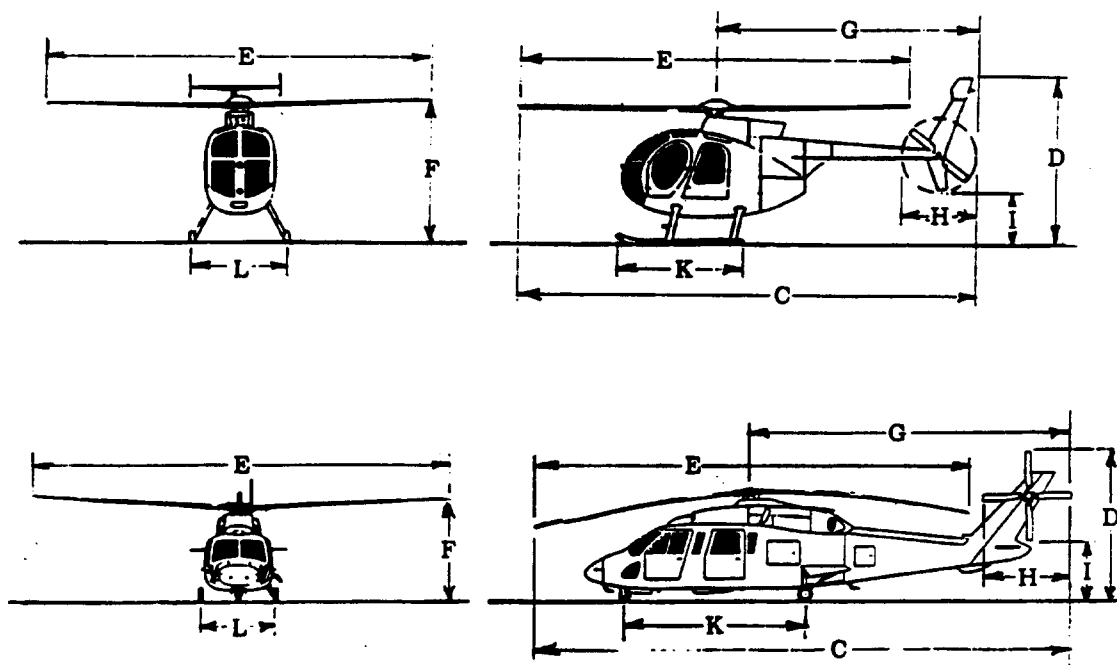


FIGURE 61-1
HELICOPTER DATA CHART-Continued

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
2	Manufacturer	Maximum Takeoff Weight (Pounds)	Overall Length (Feet)	Overall Height (Feet)	Diameter No. Blades (Feet/No.)	Main Rotor Clearance (Feet)	Hub to Air End (Feet)	Tail Rotor Diameter No. Blades (Feet/No.)	Ground Clearance (Feet)	Undercarriage Type	Undercarriage Length (Feet)	Width (Feet)	Engines Type	Crew Passengers No./No.	Standard Fuel (Gallons)
3	Model														
4															
5															
6	AGUSTA														
7	A-109	5,997	43	11	37/4	10	25	6.7/2	2.3	—	11.6	7.5	2-T	1&7	185
8															
9	AMERICAN EUROCOPTER														
10	318 Lama	4,300	43	11	37/3	10.1	24	6.3/3	3.2	skid	5.3	7.8	1-T	1&4	152
11	330 Puma	16,315	60	17	50/4	14.4	35	10.0/5	6.9	—	13.3	9.8	2-T	2&20	406
12	332 Super Puma	16,900	62	17	52/4	15	36	10.0/5	6.1	—	17.3	9.8	2-T	2&24	535
13	341 Gazelle	3,970	40	11	35/3	8.9	23	Feetstron	2.3	skid	6.4	6.6	1-T	1&4	120
14	350 A Star/Esquadril	4,900	43	11	38/3	10.3	25	6.1/2	2.3	skid	4.7	7.1	1-T	1&6	143
15	355 Twin Star	5,600	43	11	36/3	10.7	25	6.1/2	2.3	skid	4.7	7.1	2-T	1&6	193
16	360 Dauphin	6,615	44	12	38/4	11.5	26	Feetstron	na	—	23.7	6.4	1-T	1&13	169
17	365 Dauphin 2	9,369	45	14	40/4	11.4	24	Feetstron	2.6	—	11.9	6.2	2-T	1&13	302
18	50-105	5,732	39	10	33/4	9.6	23	6.2/2	6.1	skid	8.3	8.3	2-T	1&5	151
19	HE-117	7,385	43	13	37/4	11	25	6.4/2	6.3	skid	6.2	6.2	2-T	1&10	184
20															
21	BELL HELICOPTER														
22	47	2,950	44	10	36/2	9.5	25	5.1/2	3.5	skid	5.1	7.5	1-P	1&3	58
23	205	9,500	58	15	48/2	11.8	34	6.5/2	5.9	skid	12.1	8.6	1-T	1&14	215
24	206 Jet/Long Ranger	4,450	43	10	37/3	9.5	25	5.4/2	1.6	skid	9.9	7.2	1-T	1&6	110
25	212	11,200	58	15	48/2	13.4	34	6.5/2	4.4	skid	12.1	8.7	2-T	1&14	215
26	214	17,500	63	16	52/3	14	37	9.7/2	5.5	skid	12.1	8.6	2-T	2&18	435
27	330	8,400	51	12	43/2	12	30	6.9/2	12.2	skid	12.2	9.1	2-T	1&9	247
28	412	11,900	57	15	46/4	11	34	8.5/2	2.3	skid	7.9	8.3	2-T	1&14	350
29															
30	BRANTLY/HAYNES														
31	B-2-B	1,670	26	7	24/3	8	16	4.3/2	3	skid		6.5	1-P	1&1	31
32	Model 305	2,900	33	8	26/3	8	18	4.3/2	3		6.2	6.6	1-P	1&4	43
33															
34	BOEING														
35	107	30,000	84	17	56/3	15	59	50/3	16.9	—	24.9	12.9	2-T	3&25	350
36	234	48,500	96	19	60/3	15	69	50/3	18.7	—	25.8	10.5	2-T	3&44	2,100
37	360	56,100	84	20	50/4	14	59	50/4	19.6	—	32.7	13	2-T	3&30	824
38															
39	E.H. INDUSTRIES														
40	EH-101	31,500	75	22	61/5	21.3	45	13.1/4	8.2	—	22.9	14.9	3-T	3&30	805

FIGURE 61-1
HELICOPTER DATA CHART-Continued

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
2	Manufacturer	Maximum Takeoff Weight (Pounds)	Overall Length (Feet)	Overall Height (Feet)	Diameter No. Blades (Feet/No.)	Main Rotor Ground Clearance (Feet)	Hub to AR End (Feet)	Diameter No. Blades (Feet/No.)	Tail Rotor Ground Clearance (Feet)	Type	Undercarriage Length (Feet)	Width (Feet)	Engines Type	Crew Passengers No./No.	Standard Fuel (Gallons)
3	Model														
4															
5															
6	ENSTROM														
7	260/P26P	2,600	37	9	32/3	9.1	21	4.7/2	3.1	skid	3.1	7.3	1-P	1&2	40
8	480	2,650	37	10	32/3	9.1	21	5.0/2		skid		8.1	1-T	1&3	96
9															
10	KAMAN														
11	E-MAX	6,000	51	21	247/3	10.7	28	na	na	--	15.3	11.3	1-T	1	250
12															
13	McDONNELL-DOUGLAS														
14	500/520/550	3,100	32	9	29/5	8.5	19	4.6/2		skid	4.5	6.6	1-T	1&4	63
15	520R/530R	3,350	32	9	29/5	8.7	17	NOTAR		skid	4.5	6.5	1-T	1&4	63
16	MDX Explorer	5,800	39	12	34/5		23	NOTAR	3.3	skid	7.3	7.3	2-T	1&7	159
17															
18	PIASECKI														
19	PZL Sokol	14,080	61.7	13.8	51.5/4			10.0/3	na	--			2-T	2&12	
20															
21	ROBINSON														
22	R-22	1,370	29	9	26/2	8.8	16	3.5/2		skid	4.2	6.3	1-P	1&1	20
23	R-44 Astro	2,400	38	11	33/2	10.5	22	4.8/2		skid	4.2e	7.2	1-P	1&3	32
24															
25	ROGESSON-HILLER														
26	RE-1100	3,500	42	10	36/2	9.5	24	6.0/2	3	skid	7.9	7.2	1-T	1&6	69
27	UH-12	3,100	41	11	36/2	10.1	23	6.0/2	4	skid	8.3	7.5	1-P	1&2	46
28															
29	SCHWEIZER														
30	269	1,670	29	9	28/3	8.8	15	3.8/2	2.8	skid	3.6	6.3	1-P	1&1	
31	300	2,050	31	9	27/3	8.8	18	4.3/2	2.4	skid	8.3	6.5	1-P	1&2	49
32	330	2,200	31	10	27/3	9.2	16	4.3/2	3.2	skid		6.5	1-T	1&3	90
33															
34	SIKORSKY														
35	S-66	13,000	66	16	56/4	11.4	38	9.5/4	6.4	--	28.3	12	2-T	2&16	283
36	S-61	20,500	73	19	63/5	17	42	10.6/5	8.3	--	23.5	14	2-T	3&28	654
37	S-64 Sycamore	42,000	89	26	72/6	18.6	53	16.0/4	9.4	--	24.4	19.8	2-T	3&0	1,320
38	CH-53	69,750	100	29	79/7	17	61	20.0/4	9.5	--	27.3	13	3-T	3&55	1,028
39	UH-60 Blackhawk	22,000	65	18	54/4	12.3	38	11.0/4	6.5	--	29	8.9	2-T	3&11	362
40	S-76	11,700	53	15	44/4	10	31	8.0/4	6.5	--	18.4	8	2-T	2&13	281
41															
42	WESTLAND														
43	30-100-60	12,800	53	16	44/4	12.5	31	8.0/4	7.5	--	17.9	10.1	2-T	2&19	348

FIGURE 61-2 HELIPORT EVALUATIONS CHECKLIST

1. Name of Proponent:
2. Address of Proponent:
3. Phone Number of Proponent:
4. Location of Heliport:
 Street Address _____ City _____ State _____
 Latitude _____ Longitude _____ Elevation _____
5. Type of Use: ____ Public ____ Private ____ Personal
 ____ VFR Use ____ IFR Use (Identify Approach)
6. Duration of Use: ____ Temporary ____ Permanent
7. Dimensions of Landing and Takeoff Area:
8. Dimensions of Touchdown Area:
9. Suitability of Ingress/Egress Routes:
10. Type of Surface:
11. Weight limitation:
12. Description of Lighting (Diagram):
13. Does the heliport have fire protection? ____ Yes ____ No
 Describe kind of protection:
14. Does the heliport have wind direction indicator? ____ Yes ____ No
 Describe kind of indicator:
15. Other Landing Areas in the Vicinity (if within 5nm of site):
 Name _____
 Direction from Heliport Site _____
 Distance from Heliport Site _____
16. Observed Obstructions in the Vicinity of the Approach Departure Protection Area):
 Kind _____
 Direction from Heliport Site _____
 Distance from Heliport Site _____
17. Possible Noise Sensitive Areas in the Vicinity:
 What _____
 Direction from Heliport Site _____
 Distance from Heliport Site _____
18. Does the heliport's construction, markings, and safety features meet AC 150/5390-2 criteria?
 ____ Yes ____ No Explain:
19. Does the proponent have the appropriate building permit and zoning application approval from the local municipality? ____ Yes ____ No
20. Does the proponent have the appropriate approval from the state authorities? ____ Yes ____ No
21. Does the proponent have the appropriate environmental assessment in accordance with FAA Order 1050.1?
 ____ Yes ____ No
22. Conditions to be Met (if any):